

CLYMER (Geo) [

Doctor Geo. Clymer ]

Recd from

Dr. Meredith Clymer

March 30th. 1866 -

20687

To Geo. Chymer M.D. N.  
With the regards of the Printer

*Clymer Meredith*

*U S*

---

REVIEW *D. S.*  
✓

OF

CIRCULAR No. 6,

WAR DEPARTMENT,

SURGEON-GENERAL'S OFFICE.

---

Surgeon Gen's  
LIBRARY  
20637  
Washington, D.C.





*Circular No. 6. War Department, Surgeon-General's Office, Washington, November 1, 1865. Reports on the Extent and Nature of the Materials Available for the Preparation of a Medical and Surgical History of the Rebellion. Printed for the Surgeon-General's Office, by J. B. Lippincott & Co. Philadelphia, 1865. 4to. pp. 166.*

A good deal of concern has for some time been felt by the medical profession of the country—a large part having a direct interest in the matter—about the progress that had been made towards gathering, preserving, and digesting for publication the mass of facts and observations in military medicine and surgery which it was known had been accumulated in the Surgeon-General's office. A perusal of these opportune "Reports" will put to rest any anxiety or doubt that may have been felt as to the means taken to secure the early and full fruition of the enormous experience gained by four years of war, carried on by armies of unparalleled numbers, and its utmost utilization for the general good. It will also give assurance of the fitness of the officers to whom this important and difficult task has been entrusted—the Medico-Chirurgical Historiographers of the War; and check any impatience at tardiness of publication, by revealing the magnitude of the subject, showing the measures adopted to secure accuracy and thoroughness, and bringing the conviction of the absolute necessity of the patient investigation of many points, and that time will only add increase to the truth of these mighty stores. The "Reports" are a triumphant vindication of the Medical Department of the Army, and a noble monument to the courage, zeal, ability and acquirements of its officers.

The Report on Surgery is by Bvt. Lieut-Col. GEO. A. OTIS, Surgeon U. S. Vols., and the Report on Medicine by Bvt. Major J. J. WOODWARD, Assistant-Surgeon U. S. Army. A full analysis of them is not practicable within our limits, and our readers must be content with an idea, necessarily imperfect, of their scope and value.

The materials in the Surgeon-General's office from which the *Surgical History of the Rebellion* is to be compiled, and whose extent is stated as "simply enormous,"

"Consist of the reports of the medical officers engaged in it, and of illustrations of these reports in the shape of pathological specimens, drawings and models. The documentary data are of three kinds: first, the numerical returns, in which the number alone of the different

forms of wounds, accidents, injuries, and surgical diseases is given; secondly, what may be called the nominal returns, in which are furnished the name and military description of each patient, and the particulars of the case, with more or less of detail; and, thirdly, the miscellaneous reports," (p. 1.)

We have the gratifying information that "the great body of the medical officers have made the reports required of them with commendable diligence and promptitude," and their industry and zeal are the more praiseworthy when the absorbing nature of their hospital and field duties is considered.

In the British army in the Crimea there were 12,094 wounded, and 2755 killed, or a total of 14,849. In the French army, whose total effective force was 309,268, there were 39,868 wounded, and 8250 killed, or a total of 48,118.

"In the late war, the monthly reports from a little more than half the regiments in the field give, for the year ending June 30th, 1862, an aggregate of 17,496 gun-shot wounds. The reports from rather more than three-fourths of the regiments, for the year ending June 30th, 1863, give a total of 55,974 gun-shot wounds. The battle-field lists of wounded for the years 1864-65 include over 114,000 names. But these returns are to be completed by collating with them the reports of general hospitals, where many wounded were received whose names the recorders of field hospitals or regimental medical officers failed to obtain, and by adding the names of those killed in battle," (p. 2.)

In the French Crimean army there were 459 gun-shot fractures of the femur reported, and in the British army 194, while over 5,000 cases of this injury in our armies have already been sent in to the Surgeon-General's office. The Crimean returns give 16 exsections of the head of the humerus in the British, and 38 in the French army, "but the registers of this [S. G.] office contain the detailed histories of 575 such operations."

"The surgical specimens of the Army Medical Museum number 5480; and not only in specimens of recent injuries, but in illustrations of reparative processes after injury, of morbid processes, of the results of operations, and of surgical apparatus and appliances, this institution is richer, numerically at least, than the medico-military museums of France or Great Britain," (p. 3.)

And these great treasures have been classified and arranged so as to be available for present scientific study.

Such materials, from their nature and extent, must necessarily throw light on many moot points, and go far towards the solution of certain surgical problems, comprising, as they do, on some subjects—



excision of the head of the femur after gun-shot injury, for example—larger data than are extant in the whole range of surgical literature.

We will now proceed to notice the records of special injuries, and the operations done for their relief.

The number of *Gun-shot Injuries of the Head*, reported to October 1, 1864, is 5046, and they have been recorded in two classes: first, the gun-shot fractures and injuries of the cranium, including the perforating and penetrating and depressed fractures, the fractures without known depression, and the contusions of the skull, resulting in lesions of the encephalon; and, secondly, the simple contusions and flesh wounds of the scalp. In the first class 1104 cases are recorded. Of 704 in which the results have been ascertained, 505 died and 199 recovered. In 107 of these terminated cases the operation of trephining was performed, with 60 deaths and 47 recoveries. In 114 cases fragments of bone or of foreign substances were removed by the elevator or forceps, without the use of the trephine; and of these 61 died and 53 recovered. The gun-shot contusions and wounds of the scalp number 3942, of which 103 terminated fatally. So far as ascertained, the fatal results were due to concussion or compression of the brain, or to the formation of abscesses in the liver or lungs, in consequence of inflammation in the veins of the diploë. Compression resulted either from extravasation of blood, or inflammation of the brain or its membranes, or from suppuration. In a case of scalp wound received Nov. 27, 1863, no cerebral symptoms occurred until Dec. 13th, 1863, when the man was suddenly seized with convulsions, followed by coma. The skull being laid bare at the seat of injury, and the bone found diseased, the trephine was applied. There was matter beneath the bone, and oozing from the diploë. "It was thought expedient to make five perforations with the trephine, in order to remove the diseased bone and give free exit to the pus. Convulsions did not recur, but the comatose condition continued, and the case terminated fatally twelve hours after the operation. The autopsy revealed diffuse inflammation of the arachnoid and of the dura mater." This is another case proving the fallacy of the doctrine taught by Pott, that the inflammation is frequently limited to the outer surface of the dura mater, and supporting the views of Mr. Prescott Hewett, that where there is found inflammation on the outer surface of the dura mater, there is also found inflammation on the free surface of the arachnoid.\* And

---

\* Injuries of the Head. By Prescott Hewett, Esq., Surgeon to St. George's Hospital, in Holmes' System of Surgery, v. ii., p. 101.

he adds: "Indeed, the successful issue of a case of trephining for matter between the bone and the dura mater is, I believe, all but unknown to surgeons of our own time."

In the Army Medical Museum there are eight specimens of that rare and interesting variety of fracture of the cranium in which the external table is unbroken, while the vitreous table is fissured and sometimes depressed. In one of the cases, Surgeon Bontecou, who had examined some of the specimens already collected, inferring the probability of a depression of the inner table, though there was no apparent fracture of the outer one—the bone being only denuded of its periosteum—verified the diagnosis during life, by the application of the trephine.\*

"It is believed that this accident results, in most instances, from a small projectile striking the cranium very obliquely, or possibly, in some cases, from a comparatively slight blow from a body with a large plane surface," (p. 12.)

Closely allied, clinically, to these cases, are those in which a ball produces linear fissure of the external table with displacement of the inner table. A case, with an excellent illustration, is given. Of fractures without depression, the cases in which the mastoid process is knocked off by a ball afford examples. One case of recovery from this injury is given. Several instances of undepressed fracture are reported, in which a ball gouged out a small portion of the external table. It often happens that considerable portions of the calvaria are removed by explosions of shell, without causing depression. A remarkable case is related where a musket ball produced the same effect—entering "a little outside of the left frontal protuberance, and passing backwards and upwards, removed a piece of the squamous portion of the temporal bone, with brain-substance and membranes." The man "recovered perfectly," and "the mental and sensory faculties were unimpaired."

An abstract of a case of "punctured fracture" of the os frontis, by a pistol ball, is given, and in which there was the usual absence of all alarming symptoms until immediately before the inevitable fatal result, when trephining is not early resorted to. "Instances were not uncommon of the splitting of round musket balls in striking the skull at

---

\* Unhappily, an abscess had already formed in the brain, and the operation, though done as soon as evidence of compression existed, was too late to save the patient. There are but two other known specimens of this rare form of injury—one in the Dupuytren Museum, and the other in the Netley Collection. See note at the end of this article.--[REV.]



an acute angle. Conoidal balls were less liable to split after this fashion, yet such instances were occasionally observed," (p. 14.)

Recovery after penetrating, perforating fractures of the cranium was exceptional. In rare instances the fatal termination was very long delayed. A curious case is narrated where the presence of a ball within the cranium was unsuspected during life. It had entered Dec. 13, 1862; there were no cerebral symptoms until Feb. 10, 1863, when delirium set in, followed by coma, and death at midnight of the 15th.

"The autopsy revealed a conoidal musket ball wedged between the sphenoid and the left orbital plate of the frontal bone, and lying in contact with the dura mater. The orbital plate was pressed inwards and fractured, and a fissure extended through the superciliary ridge. Over the ball, at the base of the anterior lobe of the left hemisphere, was an abscess containing two drachms of pus. The ball was incrustated by callus, and the opening it had made in entering through the walls of the right orbit was greatly diminished by osseous deposition," (p. 15.)

The following is a remarkable case of perforating fracture of the skull, with recovery:

"The ball entered a little to the right of the occiput, and passed out somewhat below and to the left of the vertex. The intervening bridge of bone was about three inches wide. There had been a cerebral hernia at the wound of exit, and, when the drawing was made, four months after the reception of the injury, there was still a small tumor, covered by half-formed cicatricial tissue. There was a firm depressed cicatrix at the aperture of entry. There were no evidences of impairment of the cerebral faculties. The man was employed as an orderly," (p. 15.)

Eighteen cases of *Hernia Cerebri* are mentioned occurring in gunshot fracture of the skull, complicated with meningeal and cerebral laceration.

"In four of these cases, recovery took place without operative interference with the protruding fungous mass, which, in these instances, gradually contracted, was then covered by granulations, and finally cicatrized. In those cases in which bandaging and compression were resorted to, cerebral oppression was soon manifested, and stupor and coma eventually supervened. In those in which the tumor was sliced off, as usually recommended, at the proper level of the brain, it was commonly speedily reproduced, and death from irritation ensued," (p. 17.)

In the treatment of cranial fractures, it would appear that "the general tendency was to the practice recommended by Guthrie in regard to operative procedures, rather than [to] the more expectant plan insisted upon by the majority of modern European writers on military surgery."

Though the number of fatal results after trephining was very great, there were numerous examples of success, while the data are not sufficiently complete to admit of a fair comparative analysis.

"Still it is difficult to avoid the impression that a larger measure of success has attended this operation in the late war, than the previous experience of military surgeons would have led us to anticipate. Surgeon D. W. Bliss, U. S. Vols., alone has reported eleven successes after the use of the elevator or trephine. Even in those almost hopeless cases in which compression of the brain follows a gun-shot injury of the skull at a late date, instances of recovery are reported," (p. 16.)

Of the 1329 entered cases of *Gun-shot Wounds of the Neck*, ultimate results have been ascertained in 546 only. In the terminated cases the mortality is 14 per cent.

"Several instances are recorded in which large grapeshot, on striking the hyoid bone, were deflected, and buried themselves in the supraspinous fossa of the scapula, or among the muscles of the back. These patients died from laryngitis or œdema of the glottis, and might have been saved, perhaps, by tracheotomy; but they died suddenly when surgical assistance could not be immediately procured," (p. 20.)

In 187 cases of *Gun-shot Fracture of the Vertebrae*, all but seven were fatal. Six of these were fractures of the transverse or spinous apophyses.

"The seventh case is that of a soldier wounded at Chickamauga, September 20th, 1863, by a musket ball, which fractured the spinous process of the fourth lumbar vertebra, and penetrated to the vertebral canal. The ball and fragments of bone were extracted at a Nashville hospital. The patient was transferred to Louisville, thence to Jefferson Barracks, Missouri, thence to Madison, Indiana, and finally, on July 26th, 1864, to Quincy, Illinois. The last report states that he was likely to recover," (p. 21.)

An interesting case is given in which after death it appeared that the spinal cord had been completely severed at the seat of injury, and <sup>had</sup> ~~to~~ have become disorganized above and below. The man was wounded on the 3d of June, by a conoidal musket ball, which shattered the transverse and articular processes of the eight and ninth dorsal vertebrae, penetrating the vertebral canal. There was immediate loss of all sensation and motion below the wound. He remained in a feeble state, with slow pulse, labored respiration, cool, clammy and cyanosed skin, and involuntary fecal and urinary discharges, until the 27th of June, when excessive gastric irritability came on, and all nourishment was promptly rejected by the stomach, and he died, on July 2d, thirty days after the reception of the injury.

"Five thousand one hundred and ninety-five gun-shot flesh wounds of



the back have been recorded, of which a large proportion are injuries from shell. Troops being often ordered to lie down under a shell fire, this region becomes particularly exposed," (p. 21.)

Results have been ascertained in 1272 cases of *Penetrating Gun-shot Wounds of the Chest*, of which 930 were fatal, or 73 per cent.

"In the treatment, venesection appears to have been abandoned altogether. Hemorrhage was treated by the application of cold, perfect rest, and the administration of opium. These measures seem to have proved adequate generally, and no instances are reported of the performance of paracentesis or of the enlargement of wounds for the evacuation of effused blood. Hemorrhage from the vessels of the costal parietes has been exceedingly rare, and, in the few instances recorded, was a secondary accident. Hence the management of bleeding from wounded intercostal arteries has presented theoretical rather than practical difficulties.

"It has been the common practice to remove splintered portions of fractured ribs, and to round off sharp edges that were likely to wound the pleura or lung. After this, with the exception of extracting foreign bodies whenever practicable, and performing paracentesis when empyema was developed, it has been usual to leave these cases to the natural process of cure.

"The records of the results of the so-called method of 'hermetically sealing' gun-shot penetrating wounds of the chest are sufficiently ample to warrant an unqualified condemnation of the practice. The histories of the cases in which this plan was adopted have been traced, in most instances, to their rapidly fatal conclusion," (pp. 21-2.)

There is only one exception of reported recovery.

Where the track of the ball passed near the root of the lung recovery was rare. The cases in which there was fracture of the rib at the wound of entry were very dangerous. There was ample confirmation of the received opinion, that penetrating wounds with lodgment of the ball, are more fatal than simply perforating wounds. A remarkable recovery is mentioned, where the anterior mediastinum was opened.

"A private was struck by a three-ounce grapeshot, on the morning of May 3d, 1863. The ball comminuted the sternum, at the level of the third rib, on the left side, and tore through the costal pleura. It remained in the wound and was removed by the patient. Through the wound the arch of the aorta was distinctly visible, and its pulsations could be counted. The left lung was collapsed. When sitting up there was but slight dyspnoea. Several fragments of the sternum were removed, and the wound soon granulated kindly. On July 5th, the patient was transferred to Washington, convalescent. He ultimately recovered perfectly," (p. 23.)

Only four cases are recorded of *Gun-shot Wounds of the Heart*, that came under treatment. In a case where a small pistol shot entered the



left ventricle and passed out through the right auricle, the patient survived twelve hours.

Four instances of recovery from a formidable gun-shot wound, involving both the thoracic and abdominal cavities, are given. In the first, a conoidal musket ball went through the belly of the biceps of the right arm, entered the chest, traversed the base of the right lung and the diaphragm, wounded the intestines, and passed out above the anterior superior spinous process of the left ilium. When admitted to the field hospital, he had dyspnœa and bloody sputa, and there was a fecal discharge from the wound of exit. Treated by large doses of opium, at the end of three weeks convalescence was fairly established. In the course of a few months his wounds had entirely closed, and he rejoined his regiment for duty. In another—

“A round musket ball, fired from a distance of about one hundred and fifty yards, entered the eighth intercostal space of the left side, at a point nine and a half inches to the left of the extremity of the ensiform cartilage, and fractured the ninth rib. Without wounding the lung, apparently, the ball passed through the diaphragm, and entered some portion of the alimentary canal. Captain S—— walked a mile and a half to the rear, and entered a field hospital. On examining his wound, the surgeons found a protrusion of the lung of the size of a small orange, which they unavailingly attempted to reduce. The wound was enlarged, and still it was impracticable to replace the protruded lung. Fruitless efforts were again made to reduce the hernial tumor, after which a ligature was thrown around its base and tightened. A day or two subsequently the patient passed into the hands of Surgeon Tomaine, who removed the ligature from the base of the tumor. A small portion of gangrenous lung separated and left a clean granulating surface beneath. On May 7th, the ball was voided at stool.

“There was an entire absence of general constitutional symptoms; no cough, no dyspnœa, no abdominal pain; the bowels were regular and appetite good. The protruding portion of the lung was carnified, and and there was a dullness on percussion and absence of the respiratory murmur in a zone an inch and a half in width around the circumference of the base of the tumor. It was at this date half the size of an egg, and covered with florid granulations. On June 2d, Captain S—— was transferred to Washington. There was an elastic, partly reducible tumor, over which was an oval granulating surface, an inch and a half by three-quarters of an inch. The vesicular murmur was perfect throughout the lung, except in the immediate vicinity of the tumor. After a furlough of sixty days, Captain S—— was again examined. The wound had entirely healed; the respiratory sounds were normal; there was still a slight hernia of the lung. The general health of the patient was excellent,” (p. 24.)

In a third case, the liver as well as the lung would appear to have been implicated. On the 27th of August, a man was struck by a musket

ball four inches above the crest of the right ilium, and six inches from the spine, it passing upwards and inwards, and lodging. There was cough, with bloody expectoration and crepitant rhonchi in the lower lobe of the left lung; a profuse discharge of bile from the wound, and severe pain and tenderness in the hepatic region. Acute pulmonic symptoms subsided after a week, but cough, with purulent expectoration, persisted for months.

"Early in October the discharge of pus and bile from the wound began to diminish, and in November the pain ceased in the hepatic region, and was referred to the immediate vicinity of the orifice of the wound. The patient now began to walk about the ward. Throughout the treatment there was great tendency to constipation, which was obviated by enemata. In the middle of December the cough had nearly disappeared, and there was but a scanty discharge from the wound. On January 12th, 1863, the wound was entirely healed, and the patient was discharged from service," (p. 24.)

Of 2707 *Gun-shot Wounds of the Abdomen* reported from the beginning of the war to July 1st, 1864, there were 2164 flesh wounds, and 543 cases in which the peritoneal cavity was penetrated or the abdominal viscera injured.

"Among the flesh wounds, 114 fatal cases are recorded, which were, in most instances, cases of sloughing from injuries of the abdominal parietes by shells. The number of recoveries is unexpectedly large, but includes only cases in which the reports showed, beyond question, that the abdominal cavity had been involved.

"In many instances fecal fistulæ were produced. They commonly closed after a time, without operative interference, reopening at intervals, and then healing permanently.

"Recoveries after wounds of the large intestines have been much more numerous than after wounds of the ileum or jejunum. No case has been reported in which it was thought expedient to apply a suture to the intestines after gun-shot wounds. Gun-shot wounds of the liver were usually followed by extravasation into the abdominal cavity and rapidly fatal peritonitis. Of 32 cases in which the diagnosis was unquestionable, all but four terminated fatally," (pp. 24-6.)

All the cases of *Gun-shot Wounds of the Spleen*, that have been reported, were fatal.

"Gun shot wounds of the bladder, when the projectile entered above the pubes or through the pelvic bones, have proved fatal, so far as the records have been examined. There are many examples of recovery, however, from injuries of the parts of the bladder uncovered by the peritoneum. Several examples of recovery, after protrusions of the abdominal viscera through gun-shot wounds, have been reported. In two cases in which loops of small intestine issued, they were immediately returned and retained by means of adhesive strips and bandages,

and the patients recovered with ventral hernia. The escape of omentum, through wounds, would not appear to be a very serious complication, for in many cases portions of protruding omentum have been excised, and the patients have, nevertheless, recovered promptly," (p. 27.)

The returns corroborate the observation of Stromeier, that there is great liability to pyæmia after gun-shot injury of the pelvic bones, tedious suppuration usually ensuing. Slight hurts to the ilium, as grooving of the crest by a musket ball, usually did well; and there were many examples of perforation of the body of the bone, with ultimate recovery.

In *Gun-shot Wounds of the Upper Extremities*, progress to any extent has only been made with the class including fractures of the shaft of the humerus and either of its articular extremities.

"This comprises 2408 cases of gun shot fractures of the humerus that have been examined and recorded. Recovery followed in 1253 cases, death in 436, and the result is as yet undetermined in 719 cases. In the 1689 completed cases, amputation or excision were practised in 996, and conservative treatment was adopted in 693, with a ratio of mortality of 21 per cent. in the former and 30 per cent. in the latter. But it is premature to make deductions," (p. 29.)

*Gun-shot Wounds of the Lower Extremities.*—Only those cases of gun-shot fractures of the femur, in which the histories of the cases had been carefully scrutinized, and in which the locality and extent of the injury were clearly designated on the reports, have been entered on the permanent records—numbering 1823 cases, on September 1st, 1865, or about one-third of the total number that have been reported. Of these 1823 cases, the results have been ascertained in 1223. Of the 1183 cases of gun-shot wounds of the knee joint, the results are known in 770. Though the statistics tending towards the settlement of some of the most important, and still open, questions of surgery, are yet too incomplete to enable results to be discussed understandingly, it has been "thought expedient to report them."

"The only recorded recoveries after gun-shot fracture of the femur involving the hip joint are those in which excision was practiced. In fractures of the upper third, the mortality rate is greatest for the cases treated by amputation. There were 43 of these cases, and in 19 of them the amputation was done at the hip joint. Excision gives 7 recoveries after fractures of the upper third; 2 of these were excisions of the head and a portion of the shaft of the femur, 4 were normal excisions of the continuity, and 1 was a removal of fragments and rounding off of sharp edges of bone, which was admitted among the excisions with some hesitation. Under conservative measures 93 cases of fracture of the upper third had survived the injury a year or more, and are



reported as recovered. The mortality rate of the completed cases of amputation for gun-shot wounds of the knee joint is large, and will probably be modified when the results of the numerous unfinished cases are recorded. It depends partly, however, upon the excessive mortality of intermediate amputations of knee joint injuries. With six or eight exceptions, the 50 recoveries without amputation classified with gun-shot wounds of the knee joint were examples of fractures of the patella, in which the evidence that the joint was opened was not unequivocal. Comparing in gross the 822 finished cases treated by amputation, with the 1117 treated by conservation, the mortality rate of the former has the advantage by 8 per cent.—an advantage that is maintained in the different regions, except in the upper third. It must be remembered that the amputations include most of the bad cases, and those in which preservation of the limb was attempted and abandoned," (p. 32.)

In Stromeier's classification of the action of bullets on bone, the fifth division is that in which the ball pierces the bone and forms a canal without causing further splintering. Examples are common in the upper portion of the tibia, but very rare in the upper extremity of the femur. Specimen 565 A. M. M. shows the upper extremity of a left femur perforated by a conoidal ball. The wound was received June 26th, 1862, and death occurred from exhaustion, August 19, 1862. The near proximity of the ball had not induced any disease of the hip joint.

The degree of difference in the effect upon bones of the impact of round musket balls, and of cylindro-conical ones, has, it is believed, been exaggerated. Attention is called to one curious effect, not generally noticed, occasionally caused by the heavy conoidal ball striking the femur—the bone is fissured and comminuted, though less than is common, at the point on which the ball impinges, while at two or three inches above or below this point, according as the point of impact is below or above the middle of the shaft, a nearly transverse fracture of the shaft is produced. There are specimens in which the ball has struck the condyles anteriorly, and the shaft is snapped across two inches above. In several of these specimens the transverse fracture is not connected by fissures with the comminuted fracture produced by the ball. It would seem that these injuries were produced by balls fired at short range.

The series in the Army Medical Museum illustrating the reparative efforts of nature after gun shot fractures of the femur, consist of 190 specimens, and is of great interest. Specimen 1042 A. M. M. shows a consolidated fracture of the femur, in which the ball entered a little below the great trochanter of the right femur, shattering the upper

third of the bone; this happened September 17th, 1862; on the 21st January, 1863, the fracture was firm. The man died 9th March following, with phthisis, which had begun about the time of consolidation.

We are told that the records contain scores of fatal cases of *Gun-shot Injuries of the Knee Joint*, treated by free incisions into the articulation. "Yet amputations for gun-shot injuries of the knee, that have reached the second period, are scarcely less disastrous," (p. 36.)

"Three patients have been photographed at the Army Medical Museum who had recovered without amputation after gun-shot injuries of the knee joint. Four or five additional cases appear upon the records. In scarcely any of these cases could it be asserted that the danger of consecutive disease of the knee joint was passed. The 'curious fact,' adverted to by Surgeon I. Moses, U. S. Vols.,\* 'that more men had been discharged the service at that post [Louisville, Kentucky] who had received gun-shot wounds of the knee joint with recovery than when amputation of the thigh had been performed,' is directly contradicted by the official reports from that post," (p. 37.)

A number of drawings at the Army Medical Museum exhibit the course of balls directly in the track of the great vessels of the neck, and of the limbs, illustrating the resiliency of large arteries.

We are informed that—

"The number of *Sabre and Bayonet Wounds* that have come under treatment has been comparatively small; 105 cases of the former, and 143 of the latter comprise nearly all that have been reported for the first three years of the war. Of these wounds, two-thirds were received in action, and the remainder were inflicted by sentinels or patrols. There are 11 deaths from sword wounds recorded, and 6 from bayonet wounds. At the Army Medical Museum there are 9 specimens of sabre cuts of the cranium, a specimen of punctured fracture of the skull by a bayonet, and a preparation exhibiting a bayonet thrust through the stomach. From General Sheridan's campaign in the Shenandoah Valley, 25 sabre wounds are reported; and from the battle of Jonesborough, in Georgia, 30 bayonet wounds," (pp. 39-40.)

Of *Traumatic Tetanus*, 363 cases are all that have been reported during the war; 336 terminated fatally. Of the 27 recoveries the disease was of a chronic form in 23. "In the four remaining cases the symptoms were very grave. In two, recovery took place under the use of opiates and stimulants; in two, after amputation of the wounded part," (p. 42.)

"The great majority of the cases were treated by the free use of opium, conjoined with stimulants and concentrated nourishment. Chloroform inhalations were very generally employed during the par-

---

\*American Journal of Medical Sciences, vol. xlvii., p. 341.

oxysms of spasmodic contraction. Subcutaneous injections of the salts of morphia and atropia were frequently used. Cathartics, quinia, camphor, cannabis indica, bromide of potassium, strychnia, belladonna, and aconite are mentioned among the remedies employed. Cups, blisters, turpentine stupes, and ice were among the applications made to the spine; and fomentations with opium or tobacco, were, in some cases, applied to the wound. Amputation, the division of nerves, and the extirpation of neuromata in stumps were the surgical measures sometimes employed. The results have not modified the conclusion of Romberg, that 'wherever tetanus puts on the acute form, no curative proceeding will avail, while in the milder and more tardy form, the most various remedies have been followed by cure.' The value of nicotine, of the Calabar bean, and of curare\* as curative agents in tetanus was not tested," (p. 42.)

One case of recovery in the chronic form occurred within our observation, during the administration of large and frequent doses of the *extractum cannabis*.

Autopsies were made in many cases, but with negative results, there being no microscopic examinations. Great congestion of the brain and spinal cord is "frequently mentioned," a condition on which the constant anatomical lesion of Rokitansky and Demme—proliferation of the connective tissue of the spinal cord and portions of the brain—is believed to depend. The influence of sudden vicissitudes of temperature, of unextracted balls and other foreign bodies, and matter confined under fasciæ, in developing this affection, is abundantly shown in the records.

Of 650 examined and recorded cases of *Secondary Hemorrhage from Gun-shot Wounds*, the termination was fatal in 330, or 51 per cent. It would appear—

"That, during the earlier part of the war, there were many surgeons who were not sufficiently impressed by the precepts of Bell and Guthrie, and who frequently treated secondary hemorrhage from gun-shot wounds by tying the main trunk at a distance from the wound, even when the bleeding occurred at a comparatively early period. Later in the war, however, it was the universal practice to endeavor to secure both ends of the bleeding vessel at the seat of injury, and some brilliant examples are recorded in which this was accomplished in wounds of the posterior tibial or popliteal, when limbs had become infiltrated and swollen, and the difficulties of the operations were immense, (p. 43.)

On the subject of *Pyæmia* we are informed that the histories of 754 cases are registered, the post-mortem observations accompanying a large proportion of the fatal ones, which numbered 719, or 95.35 per

---

\* According to H. Demme, of 22 cases of traumatic tetanus treated by the latter agent, 8 recovered. See Schweiz. Zeitschrift für Heilkunde, ii., 356.



cent. These figures by no means represent the frequency of pyæmic poisoning, which was one of the great sources of mortality after amputations, "its victims being counted by thousands." The statistical reports on treatment "are adverse to the therapeutical utility of the sulphites and hyposulphites in this disease."

The form according to which all *Surgical Operations* are recorded on the registers of the office, though involving much labor, insures the highest attainable degree of statistical accuracy.

"The name and military description of the patient are given, the nature and date of his injury, an account of the operation, a notice of the local lesions which made it necessary, and of the constitutional condition of the patient at the period it was performed. A summary of the progress and after-treatment follows, and the result, if ascertained, the name of the operator, and the post-mortem appearances, when known, if the case terminated fatally. If the case furnished a pathological preparation to the Army Medical Museum, a reference is made to the number of the specimen on the catalogue," (p. 44.)

The returns of *Amputation at the Knee Joint* to October, 1864, give 132 cases, of which 52 got well and 64 died. Of 49 cases of primary amputation, 31 recovered and 16 died, a mortality percentage of 34.9. These results support the opinions of Malgaigne, Baudens, and Macleod, in opposition to Legouest. The objection to amputations at the knee joint, that the resulting stump is ill-adapted to the use of an artificial limb, is disposed of by the positive declaration of Hudson and other manufacturers, "that the stumps from the operation at the knee joint give a base of support far better than any possibly to be gained in thigh-stumps."

In 1597 terminated cases of *Amputations of the Thigh*, 64.43 per cent. died, which is within a fraction of the mortality after amputations of the thigh in the British army in the Crimea. In the French army 91.89 per cent. ended fatally. Of these 1597 amputations, 423 were known to be primary, and 638 intermediate or secondary. The ratio of mortality was 54.13 in the former, 74.76 in the latter.

There have been reported 23 *Amputations at the Hip Joint*, of which 9 were primary, with 2 recoveries, and 14 were secondary, with 3 recoveries.

"There seem to be but three conditions under which early amputation at the hip joint is admissible in military surgery, viz., when nearly the entire thigh is carried away by a large projectile, when the totality of the femur is destroyed by osteomyelitis, and, possibly, when, with comminution of the upper extremity of the femur, the femoral vessels are wounded. As to the method of operating, it may be observed that the anterior flap single procedure has of late been generally preferred," (p. 52.)

Nearly all of the cases of *Excision of the Shoulder Joint* reported during the war have been recorded.

"The percentage of mortality is 23.3 in primary cases, 38.59 in secondary cases, or a mean ratio of 32.48. The ratio in amputations at the shoulder joint is 39.24, a percentage of 6.76 in favor of excision. Of 36 cases of gun-shot fracture of the head of the humerus, selected as favorable cases for the expectant plan and treated without excision or amputation, 16 died, or 44.4 per cent., a ratio in favor of excision of 11.96 per cent," (p. 55.)\*

The observation of Esmarch, that resection of the left shoulder gives less favorable results than that of the right, is not confirmed by the returns. The method commonly preferred was that by a single vertical incision, though some operators raised a V-shaped flap, and all endeavored to include the wound made by the ball in the incision. It is frequently mentioned that the long tendon of the biceps was preserved. Where the shaft of the humerus had been extensively shattered, five or six inches of the diaphysis, along with the head, were frequently removed, in spite of the prohibition of Guthrie, and with excellent results. In one remarkable case—

"After an incision of the head and upper third of the humerus, the remainder of the bone became necrosed, and was excised, together with the articular ends of the radius and ulna, and yet a limb was pre-

---

\* Prof. A. G. Drachmann, in a recent communication to the Royal Medical Society of Copenhagen, states that the total number of resections of the shoulder and elbow joints, from gun-shot wounds, in the Danish army during the late war, was 30—16 of the shoulder and 14 of the elbow, of which 4 of the shoulder and 8 of the elbow came under his own observation. From these 12 cases, as well as from 12 others, (4 in or near the shoulder joint, and 8 in or near the elbow joint,) he is of the opinion: 1. That gun-shot wounds through the shoulder joint, with lesion of the respective bones composing the joint, may be healed, without resection, with a satisfactory result as to the future utility of the limb. 2. That gun-shot wounds in the immediate neighborhood of the shoulder and elbow joints, with injury of the bone, do not always cause the opening of the joint, and may be healed without limiting the usefulness of the limb. In our own experience, several remarkable cases of such injuries in the neighborhood of shoulder and elbow joints have made excellent recoveries without operative interference. The difficulty is to decide whether the joint is implicated or not.

Prof. Drachmann (*op. cit.*) believes, from his own experience, and that of other military surgeons, in the last Schleswig-Holstein war, that gun-shot wounds through the elbow joint, with lesions of the several component bones, may in general be healed with ankylosis of the joint, and with a result far better, for the general utility of the arm, than ~~that~~ following resection without ankylosis.—[REV.]

served, which, with the aid of ingenious apparatus, is very useful," (p. 55.)

It appears that formal *Excisions of the Ankle Joint* were rarely successful.

Prior to the late rebellion there were but *seven* recorded cases of *Excision of the Knee Joint* for gun-shot injury, of which *two* were successful. Abstracts of 11 cases of this operation are given; of these 2 got well and 9 died.\* Of one of the two recoveries the remark is made, "the success claimed is so extraordinary as to suggest some doubts of its authenticity." Three excisions of the patella are reported, the patients surviving the operations twelve, fifteen, and eighteen days, respectively. In another case the knee joint was laid open, and the fragments of a patella, shattered by a musket ball, were removed. The patient lived ten days. \*In two cases the head of the fibula was excised, and portions of the head of the tibia; both recovered. It does not clearly appear that the articulation was opened in either case.

There were 12 cases of *Excision of the Head of the Femur* on record previous to the war, with one success—Surgeon O'Leary's (68th British Foot) case, where the head and several inches of the shaft of the femur were excised for comminuted fracture of the great trochanter by a shell. [Med. and Surg. Hist. of the British Army in the Crimea, vol. ii., p. 378.] We have in this Report a tabular statement of 32 cases returned to the Surgeon General's office, of which 28 died, and 4 got well.

Though ample materials are on hand for arriving at definite conclusions respecting the value of *excisions in the continuity of the extremities*,

\* In the essay on excision of the knee joint, submitted to the Council of the Royal College of Surgeons for the Jacksonian Prize, by the late Mr. P. C. Price, lately published, of 291 recorded cases of this operation, 78, or 1 in 3.7, terminated fatally. Among these, 238 had been performed by British surgeons, with 55 deaths, showing a mortality of 1 in 4.3. These calculations include 5 fatal cases in which amputation was performed after the failure of excision. In civil practice, Mr. Butcher, of Dublin, has reported five cases of excision of knee, all of which were successful. Mr. Fergusson, who revived the operation in 1850, says, (London *Lancet*, 1864, vol. ii., p. 33:) "I have now performed this operation *forty* times, and of these no less than *fifteen* have died, [37.5 per cent.] My impression is that excision of the knee is, or should be, by proper treatment, as little destructive to life as amputation of the thigh."

M. Verneuil lately stated, at the Société Chirurgicale, (1865,) the operation had proved so fatal in the Paris hospitals, that it was nearly given up.—[REV.]



compared with amputations, they have not yet been thoroughly analyzed; but so far as examined, they are, "on the whole, unfavorable to excisions in the continuity," (p. 76.)

Of the three cases of *Ligation of the Common Iliac*, all were fatal, the patients surviving two, four, and five days respectively. Two cases of ligation of the *Internal Iliac*, for secondary hemorrhage after gun-shot wounds, are recorded; both died. Two recoveries of the ligation of the *External Iliac* are mentioned.

"Of ligations of the subclavian, 35 cases are recorded. In all, the vessel was secured outside of the scaleni. In 16 cases, the operation was on the right, and in 14 on the left side; in five cases the particular vessel is not mentioned. The operation was performed in 13 cases for secondary hemorrhage after amputation of the shoulder-joint, with four recoveries. In two cases, it was done for primary, and in fifteen for secondary bleeding after gun-shot wounds, with injury of the axillary artery, with two recoveries. In two cases, the operation was performed for axillary aneurism. In two cases, with one recovery, it was required by secondary bleeding after excisions of the humerus, and in one case it was necessitated by a secondary hemorrhage after a gun-shot wound with injury of the subclavian," (p. 79.)

The vast influence exerted upon the results of the surgical practice of the war by scorbutic and malarial complications is thus referred to:

"It can not be doubted that the frequency of osteomyelitis after amputations, the proneness to suppurative inflammation in wounds of the head and splanchnic cavities, the tendency to the sloughing of flaps, the delay in the union of fractures or the healing of wounds, and the great prevalence of pyæmia, observed at certain periods and localities, were intimately connected with the morbid causes above mentioned, which had led, in many cases, to such an impairment of the general vitality of the men as greatly to diminish their ability to resist the effects of severe injuries," (p. 86.)

In 23,260 surgical operations performed on the field or in general hospitals, in which anæsthetics were used, chloroform was administered in 60 per cent., ether in 30 per cent., and in 10 per cent. a mixture of the two.

"At the general hospitals, the greater safety of ether as an anæsthetic was commonly conceded. It was often employed, and no fatal accident from its use has been reported. In the field operations, chloroform was almost exclusively used. The returns indicate that it was administered in not less than eighty thousand cases. In seven instances, fatal results have been ascribed with apparent fairness to its use," (p. 87.)

True *Contagious Hospital Gangrene* was comparatively limited.

The Report, modestly claiming to give "an idea of the nature and extent of the data for a *Medical History of the War*," embraces re-

marks upon the medical statistics of the several armies and general hospitals, fully prepared for the two first years; the memoirs and reports on the causes, symptoms, and treatment of the more important camp diseases; the series of medical and microscopical specimens in the Army Medical Museum; and the results of pathological studies on the basis of these collections. The exemption of our army from serious epidemics is attributed to an abundant commissariat, and also, quite drolly, to liberal medical supplies. The opinion is hazarded that "the mortality of our soldiers from disease has been far less than that of any other army in time of war." Still, the deaths "from disease were far more numerous than all the slain in all the battles, and all the wounded who have since died or are yet likely to die of the injuries received in the struggle," and were more than five times as great, not counting deaths among prisoners of war or discharged soldiers, than of men of the same ages in civil life, "and were caused by diseases which are precisely those most under the control of hygienic means."

"The mortality of the armies of the United States from disease alone was 48.7 per 1000 of mean strength during the first year of the war, viz., the year ending June 30, 1862, and 65.2 per 1000 during the second year, viz., that ending June 30, 1863," (p. 92.)

It was considerably greater during the second year of the war than during the first. It varied, too, in the three great regions, Atlantic, Central, and Pacific, in which the troops operated. The Atlantic region included the North-Eastern and Middle Departments, the Army of the Potomac, the troops in North and South Carolina, and in Florida; the Pacific region embraced all west of the Rocky Mountains; and the Central Region contained the great base of the continent between the Appalachian and the Rocky Mountains.

On account of its great frequency and mortality, *Camp Fever* was, during the two years under consideration, the most important of the diseases of the army.

"In a general way, it may be said that each year about one-quarter of the men suffered from some form of the fever, and that the deaths amounted to about two per cent. of the strength. The whole number of deaths from these fevers during the first year was nearly one-half the total mortality from disease; during the second year, owing to the increased mortality from other diseases, and especially from diarrhoea and dysentery, only about one-third the total mortality from disease, though still maintaining nearly the same ratio to strength," (p. 110.)

Under the general designation of *Camp* or *Typho-Malarial Fever* are included all those cases which were reported, "during the first year of

the war, under the heads of Typhus, Typhoid, Common Continued, and Remittent."

We may venture to express a regret at the adoption of this nomenclature, and a fear that it will prove as confusing as the old comprehensive title of "Common Continued Fever," which included so many types of fever most diverse in their nature, and will hinder the investigation of the pathogeny of the several specific fevers which prevailed in our army, and the determining of the varied conditions under which they were generated and propagated. "It is easier," Bacon tells us, "to evolve truth out of error than out of confusion."

Modern pathology recognizes certain distinct varieties of idiopathic fevers, whose special nature is well defined, whose natural history has been thoroughly studied on fixed scientific principles, and whose ætic poisons have specific vital attributes peculiar to themselves, and different *local foci*. Bayle remarks: "The determination of specific characters is what is most essential in nosology." "Words," says Sauvages, "are good only in respect to their signification." We consider the correctness of this classification of fevers open to question, as not abreast of the time, and as necessarily favoring the notion of identity between diseases which have no community of origin. While any intention, by this grouping, "to express a doubt as to the propriety of regarding typhus, typhoid, or enteric and remittent fevers as distinct affections," is expressly disclaimed; and we are told, rather oddly, too, that "the enteric lesion characteristic of typhoid fever enables a ready distinction to be effected between it and genuine typhus or true remittent, *on the autopsy at least*;" and that "undoubtedly cases of simple enteric and simple remittent fevers did occur;" yet we have the adoption of the "general name," typho-malarial fever, and all the fevers of the army described under its three varieties—malarial, scorbutic, and enteric—the following reasons being assigned for this violent and unnatural arrangement:

"As the diseases have occurred in our army during the present war, the phenomena of these two [*three* have just been named, typhoid, genuine typhus, and remittent] affections have continually complicated each other in the same patient; so that, in fact, the enteric fevers have broken out among men campaigning in a malarial region, with constitutions more or less thoroughly impregnated with the malarial poison; the remittents among soldiers peculiarly prone by their exposures and mode of life to enteric disease; and both have occurred, almost without exception, in men whose health has been more or less modified by camp diet, and who were therefore suffering in some degree from a condition best characterized as the scorbutic taint. These three modifying conditions or tendencies, each of which, acting alone, might



produce simple enteric fever, periodic fever, or scurvy, when acting simultaneously produce mixed types of disease that vary infinitely in accordance with the predominance of one or another of the three sets of determining conditions," (p. 109.)

We have always regarded the term typho-malarial\* as unfortunate, and liable to lead to confusion and error. We fear that the author of the Report has been unduly biased in favor of the bantling he stands sponsor for. It was at his suggestion, we are informed, (p. 109,) that this "general name was adopted into the statistical nomenclature of the monthly reports of sick and wounded." Had this not been done so early as June, 1862, is it not probable that subsequent enlarged clinical experience may have modified his views?

We recognize, to their fullest extent, all the modifying influences enumerated, but we hold that in every case they were engrafted on some specific admitted type of fever, and were accessory phenomena. We think the objections that we have suggested to this nomenclature of fevers are sustained, when we come to the imperfect summaries of the symptoms, and the scrupulously accurate descriptions of the recent anatomical characters of each form. They strengthen our belief that a plurality of fevers prevailed in our armies during the rebellion, and prove that while they were frequently, and under certain circumstances, constantly, allied by many common characters, they were not the less separable by peculiar and distinctive traits. We saw regularly, for a series of years, every autumn, cases of typhoid fever where the proper symptoms were much modified, and often greatly masked by pallidal poisoning, but in no case were those symptoms so occult as to prevent a correct diagnosis from being made. And we have seen the same state of things constantly among the fever cases of our armies. In fairness, it must be admitted that the fever which was so prevalent in the Army of the Potomac when it was floundering in the marshes of the Chickahominy, was of a puzzling type, so far as its easy assignment to any of the known forms of fever which had existed in this country during the past thirty years, at least in the Northern and Middle States, and that it was often difficult to generalize the phenomena. In men saturated with malaria, exhausted by long exertion and insufficient rest, imperfectly nourished, exposed to the action of animal effluvia from the decaying bodies of both men and brutes, and daily drinking water impregnated with the

---

\* Why was the scorbutic element refused fellowship with the pallidal and idio-miasmatic elements? It has, and properly so, no mean pathogenic part assigned to it.

products of common putrefaction—all tending to lower the energies of the nervous system and corrupt the blood—there was produced a disease in which the combined action of pythogenetic, palludal and scorbutic causes must be acknowledged. But there was really nothing novel in either its symptoms or pathology.

This form of fever, of remitting type at the outset, with abdominal tenderness, diarrhœa, enlarged spleen, and often cerebral and pulmonary complications, (we summarise the imperfect description of the Report,) is designated the “malarial form of typho-malarial fever.” Had the use of the term typho-malarial been restricted to this variety of idiopathic fever, no serious objection could have been made to it.

“The characteristic lesion is enlargement of the solitary follicles of the small intestine, and especially of the ileum. Thickening of Peyer’s patches may be quite absent, or may be present to a variable extent. All degrees of enlargement have been noticed, from the slightest change to cases in which the follicle attains the size of a pea. The most characteristic specimens may be thus described: in the fresh intestine, the ileum presents patches of deep congestion of variable extent; the solitary follicles, enlarged to the size of large pin-heads, are frequently black with pigment deposits. The Peyer’s patches, sometimes quite healthy, are more generally the seat of pigment deposits in the individual follicles composing the patch, which appears of a gray color, dotted over with blackish points, presenting a resemblance to the freshly-shaven chin. The name ‘shaven-beard appearance’ has been quite currently bestowed upon this condition. In other cases, the Peyer’s patches are somewhat thickened, and occasionally as much so as in ordinary cases of enteric fever,” (p. 140.)

The second and rarer form of the disease, styled “scorbutic form of typho-malarial fever,” is described as “marked by the extremely adynamic character of the symptoms, by petechiæ, at times even by the characteristic scorbutic lesions of the mouth, by hemorrhage from the bowels, and other hemorrhages which complicate the disorder and often prove fatal.” In the specimens, as first received at the Museum—

“The ileum presents intense reddish-black patches of congestion, which sometimes extend throughout its whole length. The patches of Peyer are converted into livid, blackish, pulp-like sloughs, which are often remarkable for their size and fungoid appearance. Petechia-like blotches in the mucous membrane of the colon, the small intestine, and the stomach are of frequent occurrence. Similar discolorations are at times observed in other organs. The cadaver often presents petechiæ on the external surface of the body and scorbutic alterations of the mouth,” (pp. 140, 141.)

In the "enteric form of typho-malarial fever," we are told, in somewhat contradictory language, that the

"Specimens of the third group are quite identical with those obtained from the typhoid or enteric fever of civil life, and the cases in many instances are undoubtedly that affection in its ordinary form. As it occurred among the troops, however, the course of the disease was generally more or less modified by the influence on the soldier of malaria, or of the scorbutic taint, or both," (p. 41.)

A comparison of the reports from the three great regions, shows Camp Fever to have been far more frequent in the Atlantic and Central regions than in the Pacific.

"In the Atlantic region, during both years, the number of cases was somewhat less than one-fourth the strength; the deaths for each year about seventeen per 1000 of strength. In the Central region, the ratio of both cases and deaths was much greater during the first year than the second. During the first, the cases amounted to nearly one-third the strength, the deaths to about thirty-two per 1000 of strength. During the second year, the cases were somewhat less than one-fourth the strength, the deaths twenty-four per 1000 of strength. In the Pacific region, the cases for each year amounted only to between seventy and eighty per 1000 of strength, the deaths somewhat over one per 1000 during the first year, somewhat less than one per 1000 during the second," (pp. 110-111.)

The modifying influence of region on the mortality is more strikingly shown when, instead of comparing the deaths with strength, they are compared with the number of cases, for it is then seen that "the disease is not only more frequent, but more fatal, in proportion to the number of cases, in the Central region than in the Atlantic, and in this more than in the Pacific."

The occurrence of true *Typhus*—the *Pestis Bellica* and scourge of all large armies, from the siege of Syracuse to that of Sebastopol—in our armies, during the late rebellion, has been doubted, but there is sufficient evidence to show that there was a limited number of cases "in connection with overcrowded and ill policed camps," and especially among "those of our soldiers who were detained as prisoners in the enemy's hands."

Interesting materials on the subject of *Cerebro-Spinal Meningitis*, called also, improperly, we hold, Spotted Fever, have been contributed, but the fact is only mentioned.

*Yellow Fever* made its appearance at Key West, Florida, in 1862, and subsequently, in the same autumn, at Hilton Head, South Carolina.



"The outbreak was limited to a few hundred cases, and the deaths to a hundred. In both places there was the most decisive evidence that the disease was imported in consequence of the neglect or violation of quarantine regulations. The fear that yellow fever would prove a terrible obstacle to the operation of our troops in the Southern States has proved wholly unfounded. It may here be mentioned that the only subsequent outbreak of importance which has occurred up to the date of writing, was the epidemic at Newbern, North Carolina, in the summer of 1864. But even here the mortality, so far as our troops were concerned, was limited to a few hundred men. In the case of this outbreak, Surgeon D. W. Hand, U. S. Vols., Medical Director of the Department, expresses the belief that the fever was not imported, but that it originated on the spot in consequence of the neglect of hygienic precaution by the citizens of the place and by the refugees who had made it an asylum," (p. 113.)

The severe visitation of Key West, in the summer of 1864, seems to have been overlooked, and there is no doubt that there were cases of Yellow Fever at New Orleans during the autumn of the same year.

The total number of all forms of *Intermittent Fever* reported for the two years was 262,807; the number of deaths, including the so-called congestive form, for the same period, was 1,788.

"Besides developing intermittent fever [does remitting fever own any other cause?—REV.] and complicating other diseases, such as camp fever and diarrhœa, the malarial influence manifests itself with considerable frequency among troops exposed to its action by the development of a peculiar form of anæmia, which may be designated Chronic Malarial Poisoning. This condition, attended usually with enlargement of the spleen and frequently with an increase in the number of the white corpuscles of the blood, manifests itself externally by languor, feebleness, and pallor, attended commonly with neuralgic pains, and, as it actually occurred among our troops, often complicated by slight scorbutic symptoms. Attacks of fever, pneumonia, or other acute diseases occurring among patients in this condition are peculiarly apt to prove fatal. A yellowish complexion is a frequent phenomenon in the form of anæmia here referred to, and often amounts to decided jaundice.

"Mild epidemics of jaundice, running a course of from two to six or eight weeks, and usually terminating in recovery, have also been of frequent occurrence among our troops in malarial regions. That this form of the affection also stands related to the malarial poison, is shown by the fact that, as a general rule, it was most common in those localities in which intermittents were most frequent, (p. 117.)

*Diarrhœa* and *Dysentery*, disorders of great frequency, being more than one-fourth of all the cases of disease, and, next after Camp Fever, the chief cause of mortality from disease, we find reported under four heads—acute diarrhœa, chronic diarrhœa, acute dysentery, and chronic

dysentery. The terms "diarrhœa" and "dysentery" appear to have been loosely used in the Reports. "The disease most generally called chronic diarrhœa, was, in fact, usually an affection of the large intestine, which was thickened, softened, and often ulcerated. The term dysentery would have been more exact, and was bestowed by many surgeons upon the same affection which others called diarrhœa. Hence, it has been thought advisable, in considering the figures, to group together all cases reported under these heads," (pp. 117-118.) The annual number of cases for the whole army was greater than three-fourths of the mean strength. The total number of cases reported during the first year was 215,214, with 1194 deaths; during the second year, 510,461 cases, and 10,366 deaths—total, 725,675 cases, and 11,560 deaths. Taking the total of the several forms—

"It will be seen that the ratio of cases was 765 per 1000 of mean strength during the first year, and 852 per 1000 for the second; so that considerably more than three-fourths of the whole strength was attacked each year. The mortality was 4 per 1000 of strength during the first year, and 16 during the second; the disease being just four times more fatal during the second year than the first," (p. 118.)

The greatly increased mortality in the second year will be found, on an examination of the tabulated statistics, to be explained by the comparatively mild form of the acute variety, and the increasing severity of the chronic. The deaths from acute diarrhœa and dysentery in the first year were 1 to every 331 cases, and in the second year, 1 to every 245; while in the chronic forms the mortality increased from 1 death in every 30 cases, in the first year, to 1 in every 8 in the second.

"Like camp fever and intermittents, diarrhœa and dysentery were most frequent in the Central region; less so in the Atlantic, and least in the Pacific region. In the Central region, the cases were more numerous than the strength during the first year, and nearly equal to the strength during the second; in the Atlantic, they were more than half the strength during the first year, and more than three-quarters during the second; in the Pacific region, during each year somewhat over one-quarter the strength. The differences between the ratio of mortality to strength, in the three regions, were still more striking; in the Central region the mortality was 9 per 1000 of mean strength during the first year, 23 per 1000 during the second; in the Atlantic, 1 per 1000 during the first year, 9 per 1000 during the second; in the Pacific region less than 1 per 1000 during each year," (p. 119.)

They were, by far, most frequent in the summer and autumnal months.

As in the case of camp fever, it can not but be regretted that the acute and chronic forms of diarrhœa and dysentery have been grouped

together under one head in the statistical returns. Still, it will not materially damage the practical study of the causes, symptoms, nature, and treatment of that scourge of our armies, camp or chronic diarrhœa, as it was almost universally called. Although no attempt is made in the Report to present any analysis of the vast amount of material that has been contributed on this important disease, some general views of great interest are hazarded, which we regret we can not present more fully to our readers, owing to the great length this article has already reached. We will endeavor to briefly mention some of the salient points. The causation of chronic diarrhœa is to be found in no one condition, but the long continued and co-operative action of certain influences, chief amongst which are the scorbutic taint, due to camp diet, malarial poisoning, the filth and overcrowding of camp and barracks, excessive and prolonged heat, physical fatigue and exhaustion during active campaigns, and impure water. "Whether there has ever existed, in addition to these intelligible conditions, any specific causative momentum deserving the designation of epidemic influence, is a grave question, which receives no affirmative reply from any experience reported during this war." There is no "specific cause, or set of causes, different from those which induce the acute form." Frequently, perhaps usually, repeated attacks of acute diarrhœa preceded the more serious and continued disorder; hence the presumption is warranted "that a certain length of time is required before the influences to which a soldier is exposed culminate in chronic diarrhœa."

To the statement that "among its most striking phenomena may be mentioned the usual absence of fever throughout the greater part of its course," we must put in a demurrer. If Galen's definition of fever, "*calor præter naturam*" is correct—and it can not be disputed that of all the clauses and phrases in the many definitions of fever attempted by systematic writers, it is the only one whose accuracy is unimpeachable—we are confident that febrile phenomena would have been found present in every case of chronic diarrhœa in our armies, had the amount of preternatural heat in each case been ascertained by accurate thermometric measurement. The "*dry, harsh condition of the skin*" is admitted, as well as the "*extreme emaciation*"—the latter symptom being due to *increased amount of tissue change*, another constant phenomenon of fever, and one exhibiting a certain co-relation to, and association with, morbid development of the heat of the body. It is to be regretted that the products excreted by the lungs, skin, and kidneys, as well as by the bowels, were not the subject of frequent examination and investigation in this disorder, and that it was not ascertained in



what organs increased or diminished elimination was the rule. Our own observations have inclined us to entertain the belief that camp diarrhœa was a *chronic autophagic disease*, induced mainly by the causes heretofore enumerated—causes, in themselves, affecting and impairing the proper nutrition of the body, inducing a condition of gradual and slowly continuous semi-starvation, the body literally feeding on itself, and that death happens in a state of extreme debility and exhaustion, except in the exceptional cases where some acute accidental complication kills the patient. These intercurrent affections were, we think, much less frequent than the reporter claims, the supervening fever and acute dysenteric symptoms being natural terminal phenomena of prolonged autophagism. It is not to be denied, however, that a patient suffering from chronic diarrhœa may be attacked with camp fever or acute dysentery, and the characteristic lesions of these diseases be found variously and curiously combined.

The pathological anatomy of camp diarrhœa is illustrated by over 200 specimens in the Army Medical Museum, arranged in four groups: (1) examples of follicular ulceration of the colon, with thickening of the intestinal coats, which ulcers extend, by burrowing in the submucous connective tissue, until, (2) in extreme cases, the mucous membrane of the colon is destroyed by vast erosions. In some cases (3) the surface of the gut is more or less coated with a yellowish, or greenish yellow, pseudo-membranous layer, similar to the membrane formed in the air-passages in diphtheria, and is generally found after the sudden supervention of symptoms of acute dysentery. In a few cases (4) the small intestine is implicated, the ileum being variably thickened, particularly near the ileo-cæcal valve, and presenting ulcers of variable size, which appear to have their origin in the solitary follicles, and not in Peyer's patches.

With respect to the treatment of chronic diarrhœa, we are told, the whole range of vegetable and mineral tonics, and alteratives, and astringents have been employed with variable success, and subnitrate of bismuth, strychnia, and arsenic are particularly named.

"The utter failure of these, or indeed any therapeutic agents, to command general confidence, or to come into general use, will show how subordinate their effect is to be regarded to that of proper dietetic and climatic conditions," (p. 126.)

All medical men who have had large experience in treating this disease, will admit the impotency of drugs and the value of diet and climate. The latter is an essential element in the treatment. Its influence is absolute. Without it all other means are but palliative and

temporary; it is the only one which is followed by abiding results. The value of change of climate in the treatment of chronic diarrhœa was recognized in the Mexican war, and during the late rebellion the Medical Department "was fully alive to the advantages to be derived from that source, and availed itself of them as far as, at the time, with a full knowledge of all the circumstances of the case, it was believed to be practicable." Patients suffering from chronic diarrhœa in the middle and southern districts of the Atlantic region were transported to the hospitals in the State of Vermont, and with success. In the West such cases were sent to hospitals in high northern regions, as at Keokuk, Ia., Madison, Wis., Chicago, and Detroit.

As "considerable confusion appears to have existed as to the precise signification and limits of the terms catarrh, epidemic catarrh, and acute bronchitis, precisely similar cases being reported by different surgeons under each of these heads," and believing that the causes determining inflammatory affections of the several portions of the respiratory apparatus are intimately allied, it was thought "advisable to bring together, in a single group, all the disorders of this class," designating them *Inflammatory Diseases of the Respiratory Organs*, and including all the cases reported as epidemic catarrh, catarrh, acute and chronic bronchitis, laryngitis, pleurisy, and pneumonia; again this violent and artificial grouping may have been necessary, but is not, for obvious reasons, the less regrettable.

"The total number of cases during the first year amounted to more than one-half the mean strength; during the second year, however, to not much more than one-quarter of the strength. The deaths were between 8 and 9 per 1000 of strength during each year," (p. 128.)

Unlike camp fever and diarrhœa, this group of diseases happened with nearly equal frequency in the three regions. The proportion of mortality to strength, however, followed the same general law as the other camp diseases, being most frequent in the Central, and least so in the Pacific region. The proportion of deaths to cases was likewise greater in the Central than in the Atlantic, and in this than in the Pacific.

"In the Atlantic region there was one death to every 123 cases during the first year, one to every 71 during the second; in the Central region one to every 31 cases during the first year, one to every 18 during the second; in the Pacific region one to every 291 cases during the first year, one to every 211 during the second. The average for all regions and both years was one death to every 38 cases," (p. 130.)

The greatest number of deaths from the inflammatory affections of the respiratory organs were reported under the head of Pneumonia.

Out of a total of 8090 deaths from respiratory diseases, 7091 are due to this cause. The experience of the two years gives a mortality of one death to every seven (6.8) cases in the Atlantic region, and one to every four (3.8) in the Central; "and this proportion is so great, as compared with the results in modern civil hospitals, as to direct attention to the general want of success which appears to have attended the treatment of this disorder," (p. 131.)

This startling proportion of deaths to cases was, to a certain extent, due to the then prevalent types of the disease, called, in the Report, "Typhoid Pneumonia," and "Adynamic Pleuro-Pneumonia." The mortality from pneumonia in the British Army, in the Crimea, was one death in every 3.6 cases. We are surprised to find not one word respecting Capillary Bronchitis, which was not infrequent among the white troops in certain regions, and very common among the colored soldiers. It was usually confounded with typhoid pneumonia.

Respecting *Scurvy*, we are informed that the amount reported was comparatively small.

"1328 cases and 9 deaths for the first year; 7395 cases and 90 deaths for the second. To this may probably be added the greater part of the 304 cases and 31 deaths of purpura reported during the second year. This extremely small number of cases of scurvy is unparalleled in the history of armies, being but 5 per 1000 of mean strength for the first year and 13 for the second. It undoubtedly stands related to the quantity and comparatively good quality of the army ration,—to the immense supplies of antiscorbutics, of medical stores and comforts issued to the men by the Government, and to the large pay of the private soldier, which is very many times greater than in any other army in the world, and which, in part at least, was often spent at the sutler's on pickles, apples, pies containing dried fruit, etc. From all these sources, ours have undoubtedly been the best fed soldiers in the world," (p. 134.)

This is a satisfactory statement to read, but how far it is really supported by facts, we leave those to judge whose opportunities were large in our armies, and to the Report itself which signally contradicts it. Besides it being insisted on that scurvy was a constant complication in camp fever and camp diarrhœa, we find, a few lines after, this most extraordinary assertion—"a scorbutic taint, more or less pronounced, was a prominent phenomenon in most of the diseases of the war," (p. 134.)

Again: "The scorbutic taint manifested itself very generally in the form of rheumatic pains in the back and limbs, associated with the scorbutic, clay-like appearance of the skin, sometimes even with sponginess of the gums, much more rarely with petechiæ, scorbutic discolorations about the flexure of the knee, etc. Most of the physicians



called upon to treat these cases, having had in their previous private practice little experience with scurvy, reported them as rheumatism, lumbago, or neuralgia," (p. 134.)

Does not this admission account for the amount of scurvy reported being "comparatively small?" The records of the two last years of the war will, we suspect, show a very different state of things, and lead the Reporter to qualify somewhat his inordinate laudation of the army ration.

Of *Tubercular Diseases* there were 8.9 cases per 1000 of mean strength for the first year, 9.3 for the second. The deaths were 1 to every 4.5 cases during the first year, 1 to every 2.7 during the second.

Notwithstanding the length of this notice, we have been able to give our readers only an imperfect notion of these Reports. Many matters of interest we have not been able to touch upon, from want of space at our disposal. They are sterling productions, and singularly free from blemishes, defects, or shortcomings. It is indeed difficult to measure the praise that is honestly due their authors, who both possess fitness for the perilous and laborious tasks assigned them. The "Surgical Report" is marked by clearness of language, precision of statement, and a generally quiet, unassuming tone. Dr. OTIS has been remarkably cautious in hazarding premature conclusions from statistics which are daily augmenting, and tending towards completion. Dr. WOODWARD, in the "Medical Report," shows great acuteness and industry in his intelligent tabulation of the accumulated data, by which he has been able to give numerical expression to the sick and death rates, and the frequency and mortality of certain diseases; and patient research in his valuable and original investigations in micro-pathology. He seems, also, fully to appreciate the practical aspect of his subject.

The Messrs. Lippincott have produced the volume in a most creditable manner, leaving nothing to be desired in the way of paper and typography. The several lithographs and numerous wood illustrations are well executed.

In conclusion, it must be remembered that, following the example set by the Medical Department of the British Army after the Crimean war, both the Medico-Chirurgical History of the late war and the Army Medical Museum originated with Dr. W. A. HAMMOND, when Surgeon-General, and their inauguration was amongst his earliest official acts. Before his enforced retirement they had both made substantial progress. Nor in this connection must be forgotten the

claims and merits of a gentleman who created, organized, and, for more than two years, had entire charge of the Museum; who was the Surgical Historian of the War during that time; and who, in the discharge of every duty he was assigned to while in the service—whether in the field, the general hospital, or the Medical Bureau—showed conscience, zeal and capacity—Dr. J. H. BRINTON, of Philadelphia.

NOTE.—So far as we know, Dr. Bontecou's case (p. 6), where fracture and depression of the internal table of the skull alone existed, is the third in which the nature of the injury was suspected during life, and the diagnosis verified by an operation. In Mery's case, (Garengot, *Traité des Operations de Chirurgie*, t. iii., observ. xii.,) the persistent non-adhesion of the pericranium he thought might indicate fracture of the inner table, there being none of the outer. He trephined, a quantity of effused blood escaped, the existence of the fracture was verified, and the patient recovered. Saucerotte (*Mem.*, &c., pour le Prix, &c., t. iv.) remarks in this case: "Le défaut d'adhérence du pericrane, quoique signe equivoque de la fracture, ne trompa point M. Mery."

In La Motte's case, (*Traité Comp. de Chir. etc.*, 2me Ed., t. ii., Paris, 1732, p. 305,) the man was struck on the head by a stone thrown at him. He dropped, senseless. After some time (long-temps) he recovered, but remained vertiginous, so that he could neither stand nor sit, but was obliged to lie down. The wound of the scalp was in size less than half a pea. On learning the symptoms, La Motte diagnosticated fracture of the internal table, though, after careful examination, there was found no injury of the outer table, and on consultation he decided to operate. A fissure of the tabula vitrea, right in the middle of the removed portion, was found, and no fluid effusion. The vertigo, &c., immediately ceased, and the patient made a prompt and good recovery.

The explanation of the way fracture of the internal table only is produced, given in the "Report," is that advanced by Legouest: "Les fractures. . . ne peuvent être produites que par l'action obliquement dirigée d'un projectile, ou par le choc médiocre d'un corps à surface étendu, plane et régulière." Dr. Bernhard Beck† maintains that it can only be caused by a body striking obliquely. Grima† holds that the amount of force of the impinging body must not be great. "De là il suit que si le coup n'a pas tout à fait le degré de force qui seroit capable de rompre les deux tables de l'os, il peut en avoir assez pour que la lame interne, plus mince que l'externe, se fende ou se fracture en éclats, sans que celle-ci perde continuité. Un coup de fusil reçu horizontalement, la balle ayant perdu la plus grande activité de son mouvement, sur un casque a produit cette fracture de la table interne." Saucerotte,§ on the contrary, believes that ~~that~~ the ball should hit with

\* *Traité de Chirurgie d'Armée*, p. 284.

† Ueber isolirten Bruch der Glaskugel. *Archiv für Klinische Chirurgie*. Zweiter Band. 1862, p. 557.

‡ *Mémoire sur les contre-coups*. Couronné en 1766. Prix de l'Acad. Royale de Chirurgie, t. iv p. 257.

§ *Mém. sur les sujets proposés pour le Prix de l'Acad. Royale de Chir.*, t. iv. p. 391.

great force to cause this lesion of the vitreous table. He says : “Parceque la collision ayant été de la rapidité et de la force la plus grande, on doit conjecturer que la table externe ayant souffert un ébranlement considerable dans ses parties intégrantes, qui ont été assez souples pour prêter à l’effort de la percussion, il a dû se transmettre aux parties subjacentes.”

Mr. Teevan,\* who has lately studied the subject experimentally, says: “What is necessary is, that the bullet should not strike with much force:” thus agreeing with Grima. He adds: “In every case in which I produced it, it was by hitting the skull at right angles with but little force. Hence the kind of violence likely to cause fracture of the internal table only, is that resulting from a small stone, *spent bullet*, stick, or some body acting with a slight amount of force on a limited part of the skull—merely temporarily depressing, or bending the part struck.”

Mr. Prescott Hewitt thinks “there is no doubt that the direction the force acts tends in some measure to produce these effects.”†

A third specimen of this fracture, exhibited by Mr. Edwards to the Medico-Chirurgical Society of Edinburgh, June, 1862, should be in existence.‡

M. C.

---

\* Injuries of the Head, Holmes’ System of Surgery. Vol. ii., p. 115

† An Inquiry into the Causation, &c., of Fracture of the Internal Table of the Skull, by W. F. Teevan. Brit. & For. Med. Chir. Rev., July, 1865, p. 196.

‡ Case of Laceration of middle meningeal artery. Ed. Med. Jour., Vol. viii., p. 191.













